

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

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| Applicant's or agent's file reference P36135P0-514 | FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below. | |
| International application No. PCT/JP2004/019484 | International filing date (day/month/year) 20/12/2004 | (Earliest) Priority Date (day/month/year) 22/12/2003 |
| Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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International application No.

PCT/JP2004/019484

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

The present invention aims at providing a metal halide lamp that (i) prevents a decline in the lumen maintenance and a deterioration of quality in appearance due to the coloring of a casing tube surrounding the arc tube, and at the same time (ii) achieves high luminous efficiency. A metal halide lamp (1) has a pair of electrodes (20a&b) placed in an arc tube (3) made of translucent ceramic, and a sodium halide is enclosed therein. The metal halide lamp (1) satisfies $L/D > 4$, where L is the length of the space between the electrodes (20a&b) and D is the internal diameter of the arc tube (3). The metal halide lamp (1) has a casing tube (2) surrounding the arc tube (3), at least around a portion between the electrodes (20a&b). Here, $R/r > 3.0$ is satisfied, where R is the internal diameter of the casing tube (2) and r is the external diameter of the arc tube (3), within a region positionally corresponding to, in a radial direction of the arc tube, the space between the electrodes (20a&b) on a cross-sectional surface where an outer circumference of the arc tube (3) comes closest to the internal circumference of the casing tube (2).

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International Application No

PCT/JP2004/019484

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01J61/34 H01J61/30 H01J61/82

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 4 401 913 A (KOZA ET AL) 30 August 1983 (1983-08-30) column 5. line 54 - line 57; column 1, line 14 - line 16; figures 1,3 ----- | 1-6, 11 |
| X | EP 1 335 406 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD; MATSUSHITA ELECTRIC WORKS, LT) 13 August 2003 (2003-08-13) abstract; claims 1,7; figures 1,2 ----- | 1-11 |
| X | US 5 973 453 A (VAN VLIET ET AL) 26 October 1999 (1999-10-26) abstract; claim 1; figure 1 ----- | 1-6, 9-11 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 June 2005

Date of mailing of the international search report

04/07/2005

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/019484

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
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| US 4401913 | A | 30-08-1983 | CA 1181050 A1 DE 3278095 D1 EP 0066783 A2 JP 57202636 A | 15-01-1985 10-03-1988 15-12-1982 11-12-1982 |
| EP 1335406 | A | 13-08-2003 | US 2003141826 A1 CN 1441456 A EP 1335406 A2 JP 2003229089 A | 31-07-2003 10-09-2003 13-08-2003 15-08-2003 |
| US 5973453 | A | 26-10-1999 | AT 231285 T CN 1210619 A ,C DE 69718460 D1 DE 69718460 T2 EP 0896733 A1 HU 222635 B1 WO 9825294 A1 JP 2000501563 T JP 3444899 B2 JP 2003242934 A PL 328092 A1 | 15-02-2003 10-03-1999 20-02-2003 23-10-2003 17-02-1999 29-09-2003 11-06-1998 08-02-2000 08-09-2003 29-08-2003 04-01-1999 |